everywhere found. The real cause of this sudden disappearance has been found to be a contagious bacterial disease whose rapid dissemination is favored by wet weather and by the crowding of the insects into restricted areas as the food supply decreases. In this case the disease is left wholly to spontaneous development, but it is reasonable to suppose that were the disease producing bacteria artificially cultivated and multiplied, which is readily done in properly equipped laboratories, and held as a magazine to supply the germs as soon as the first insects are seen, the pests might be swept away, at a merely nominal cost, at the beginning instead of at the end of their destructive career. This is not all theory! In the United States excellent results against the clinch bug have been obtained in Kansas, Illinois and other states. In Europe very satisfactory results have been obtained in combatting the "white grub" (*Melolantha vulgaris*), by means of the fungus, *Botrytis tenella and B. bassiana.* In this country the most satisfactory results have been obtained from *Sporotrichinm densum* and *Empursa,* several sp ecies.

This method of combatting noxious insects is now attracting widespread attention from German and French scientists and promises much for the future.

LETTERS TO THE EDITOR.

***Correspondents are requested to be as brief as possible. The writer's name is in all cases required as a proof of good faith.

On request in advance, one hundred copies of the number containing his communication will be furnished free to any correspondent.

The editor will be glad to publish any queries consonant with the character of the journal.

Inductive Psychology.

I WISH to thank you for your appreciative words and criticisms of my "Inductive Psychology," which was hastily prepared for private use rather than to stand the test of criticism for general circulation; I am pleased that more defects are not at once discovered. I think, however, a little explanation from me is necessary upon one point. In writing every sentence of the book my principal question was, what experience of the pupil will this appeal to? what thoughts and observations will it suggest? and not, how can I most logically state these truths so as to completely cover the subject? The aim is not a complete treatment of the science, but an *introduction* to it that shall give the pupil psychological knowledge, power and vocabulary that will enable him to continue the study in both living subjects and books. To such an extent is this true that inferences as to what portions of psychology I value most cannot be correctly made, for my principle of selection was not scientific value and importance but pedagogical value to the pupil at this stage of the study.

Now, Mr. Editor, however much you may disagree with my use of the word "inductive," if you will lay aside the expectations that the word "inductive" in the title aroused in your mind, you cannot but see that the book is pedagogically essentially different in method from any other text-book on psychology. I feel as if explanation on this point is due to myself; for if the book is not different in method of presentation from other psychologies, I have no excuse for writing it. The following, however, from a teacher of psychology, confirms me in the belief that I have such an excuse. "The book is the best I know of from the *teacher's* standpoint. It illustrates a method of treating the subject which I find in no other book. So far as I know, most text-books have been elaborated without regard to the pedagogics of the subject, but only the logical and scientific arrangement of the facts enumerated; but I feel that this cannot be said of yours."

E. A. KIRKPATRICK.

Winona, Minn., Sept. 25, 1893.

The Sounds of R.

As Mr. Melville Bell complains, in your October number, that the sounds of R have been treated unscientifically in my "Introduction to Phonetics," (Sonnenschein, London, and Macmillan, New York, 1891), I beg to observe that the difference between us arises from the difference in the facts observed by each.

In my pronunciation, for instance, and in that of cultivated English people of the present day, his ear would, I am sure, observe no difference between *alms* and *arms*, or between *laud* and *lord.*

In my treatment of the *r* sounds in English, I am supported by the evidence of all competent observers of the best English spoken in the south of England in the present day, and the leading phoneticians are also agreed in regarding this as standard English. I refer to such men as Dr. Sweet, Prof. Johan Storm, of Christiania, and Prof. Victor, of Marburg.

If I were making a study of American English it is probable that my observations would be in accord with those of Mr. Melville Bell. LAURA SOAMES.

Brighton, England.

The Absence of Air from the Moon.

SEEING in the journal *Nature,* of London, date August 31, 1893, the announcement of a paper entitled "The Moon,s Atmosphere and the Kinetic Theory of Gasses," to be read next week at the meeting of the British Association at Nottingham by the author, Mr. G. H. Bryan; and since this subject was treated by me in *Nature,* Nov. 7, 1878 (15 years ago), I wrote to the author, Mr. G. H. Bryan, in reference to this. He has informed me to-day by post that this subject was dealt with in your journal, *Science,* of Feb. 24 last by Sir Robert Ball, who sent his communication to you as original, although Mr. Bryan considers it "identical in substance" with my letter in *Nature* (above mentioned) entitled "A question Raised by the Observed Absence of an Atmosphere in the Moon " (*loc. cit. sup.*)

As Sir Robert Ball makes no mention in your journal of my letter (in *Nature*). I merely wish to claim just priority here for the theory as mine and not his; since it is discussed as his—Sir Robert Ball's—in subsequent numbers of *Science,* such as that for August 18, 1893, in a paper by Prof. Liveing, of Cambridge, England, who suggests a further application of the theory in an article entitled "The Aemosphere of Stellar Space." To make a reclaim is somewhat of a task, and it would be fitting if an author's work were voluntarily recognized without his incentive; but I cannot do otherwise under the circumstances than mention the matter to you in this letter. Mr. Bryan informs me that his paper deals with "the bearing of statistical calculations on the theory," and he makes "no claim to originality except in the numerical results arrived at."

There may doubtless have been some advantage in Sir Robert Ball treating of the theory in question in your journal; but I am surprised at his not mentioning my name in connection with the theory.

S. TOLVER PRESTON.

Hamburgh, Germany, Sept. 9.

Fossils of the Bridgeport Quarries.

ONE interested in geology, while looking over the fine exhibit of Ward's Natural Science Establishment in the Anthropological building at the World's Fair, and also the geological exhibit in the Government building will notice that the finest crinoids and other fossils of the upper Silurian, Niagara Terrane, are labeled "Bridgeport, Ill." Looking up Bridgeport on the map, myself and friend found it to be only a portion of Chicago, situated

on the Chicago River. Taking an Archer Avenue car from down town we soon found the limestone quarries for which we were seeking. At this place the Niagara Limestone crops out, and having been found to produce a very good quality of lime, has been extensively mined and large lime kilns erected.

Having obtained a permit from the office of the Lime Company, we descended into the pit, which, on looking up from the bottom, appeared like a large amphitheatre of rock.

They had just finished blasting before we arrived, hence we found the place most favorable for collecting fossils. For several hours we climbed over the rough masses of rock, hammer in hand and stowed away in a large bag the choice specimens found. The most abundant fossil was an undetermined species of Macrostylocrinus, of which we collected several dozen fine specimens. Next in abundance was the large crinoid *Siphonocrinus nobilis*, Hall, of which we collected eighteen choice specimens, also specimens of the following crinoids: *Eucalyptocrinus chicagœnsis, E. rotundus, Holocystites alternatus*, and *Caryocrinus ornatus*, Say. The most abundant coral was *Japhrentis Turbinatum*, Hall. We also found *Platyceras Campanulatum, Amphicœlia, neglecta*, McChesney, Trilobites, Brachiopods, and a very fine Ammonite.

In this way one interested in geology, while visiting Chicago, may fill in an odd day by collecting some interesting specimens. PAUL VAN RIPER.

Niles, Mich.

COON CATS.

SPEAKING of cats, I saw, in a private house in Chicago recently, two cats which the owners called "coon cats." They had been obtained in the edge of the forest around Moosehead Lake, and it was claimed that they were hybrids, or descendants of hybrids of the domestic cat and the raccoon. They were larger than the ordinary house cat, had very coon-like countenances and bushy coon-like tails that were always expanded. One had the habit of ascending something high and resting stretched out, and their motions when in a little hurry were a coon-like gallop.

The claws were retractile, the foot digitigrade. I did not examine the dentition, but could find nothing but appearance that indicated a coon kinship. They interbred with the common cat. Can some one tell me more about them? J. N. BASKETT.

Mexico, Mo., Aug. 28.

DAMAGE TO COTTON BY LIGHTNING.

THE communication of Mr. Frank E. Emery on "Damage to Cotton by Lightning" in your issue of Sept. 8, prompts me to communicate the following facts, bearing directly on Mr. Emery's subject.

For thirty years prior to 1890 some cotton fields at Goldsboro, N. C., owned by the State for the use of the Colored Insane Asylum, have been "struck" by lightning. Occasionally the fields were spared, and then again they suffered two or three times a year. Each stroke would destroy from one-quarter to one-half an acre. The lightning would strike very near the same place every year. In the year 1890 electric light wires were run from the city lighting plant to the Asylum. During the summers of 1890 and 1891 the poles near where the lightning was accustomed to strike, were badly split up. In the summer of 1892 lightning arresters were placed near these points, and since that time there has been no trouble from lightning. Since the wires have been strung on this pole line, lightning has not struck the fields, the wires protecting them perfectly.

These facts are vouched for by a gentleman residing in Goldsboro, who lived on the farm above mentioned before it came into the possession of the State and for the last few years has been manager of the electric plant, thus being acquainted with all lightning troubles that his plant has had to contend with. A. F. MCKISSICK.

Auburn, Ala., Sept. 23.

RHYTINA GIGAS LINN. AT PRINCETON.

IN numbers 522 and 523 of *Science* may be found descriptions of the skeleton of Steller's Sea-Cow (*Rhytina gigas Linn.*) as preserved in the various museums. The Museum at Princeton, New Jersey, has lately come into the possession of a most beautiful set of casts of *Rhytina*, which were obtained from Mr. Robert F. Damon, of Weymouth, England, and are an exact reproduction of the originals found at Behring's Island, and secured by the late Robert Damon, F. G. S., through Dr. Dybowski and presented to the British Museum of Natural History at South Kensington. (*vide* description by Dr. H. Woodward, F. R. S., Quart. Jour. Geol. Soc., 1885, XLI., pp. 457-72). The casts in the Princeton Museum are the following: cranium and jaw (length 68cm) brain cavity, dorsal, lumbar and caudal vertebræ, five cervical vertebræ, atlas and axis, three auditory ossicles, scapula, humerus, radius and ulna. JOHN EYERMAN.

Oakhurst, Easton, Pa., Sept. 22.

SUGAR FROM CORN STALKS.

MR. STEWART'S articles on this subject were intensely interesting and his investigations will doubtless lead to important economic results. As an item of news in this connection I may say that I have a neighbor who made sugar from corn stalks nearly forty years ago. She extracted the sucrose partly by diffusion (boiling the stalks in water) and then by pressure and obtained a sugar nearly white in color and excellent in flavor and sweetening power. A. STEVENSON.

Arthur, Ontario.

"CURIOUS EARS OF INDIAN CORN."

MR. HERSHEY, a recent correspondent in *Science*, speaks of a maize plant producing a cob at the summit of the stalk where we usually find only the tassel of staminate flowers. Such cases, I think, cannot be uncommon, I observed three last year within a small plot of a few square yards. This year a neighbor showed me an even more curious variation of the same kind. The stalk terminated in a spike of about 8 inches long, the upper half of which had contained staminate flowers, while the lower half, which was considerably stouter, contained immature grains. It was in fact a small cob without husks. and the grains were greenish in consequence. Branching off from the stalk at the base of the cobs were two slender pedicels of the remains of staminate flowers. The cob on this specimen contained no staminate flowers, but they were quite numerous on the stunted cobs which I saw last year.

A. STEVENSON.

Arthur, Ontario.

EVOLUTION OF SCIENCE TEACHING IN PRIMARY SCHOOLS.

IN *Science*, No. 554, Dr. George G. Groff well shows how insufficient are the means provided in certain professional schools, for properly instructing and training teachers for science teaching in secondary and primary schools. The numerical results of his tabulations certainly place the normal schools of Pennsylvania on the side of tradition as against progress. The ratio of grammar teachers to science teachers is five to four, and the number of teachers of mathematics is approximately that of the teachers of science.